TW AF 1731

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

MATTHEW R. HYRE : Art Unit: 1731

Serial No: 10/005,682 : Examiner: Carlos N. Lopez

Filed: December 5, 2001 : Docket No: 5356-05

For: GLASS CONTAINER FORMING MACHINE

Hon. Commissioner of Patents
and Trademarks
Mail Stop Appeal Brief - Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: ASSISTANT COMMISSIONER FOR PATENTS, P.O BOX 1450 ALEXANDRIA, VA 22313-1450 ON May 18, 2005

Jean L. Gianfrido

Sir:

BRIEF ON APPEAL (Second Sending)

Three copies of this brief are submitted.

(1) Real Party In Interest

This application has been assigned to Emhart Glass SA which is a wholly owned subsidiary of Bucher Industries SA.

(2) Related Appeals and Interferences

No other appeals or interferences relate to this subject matter.

(3) Status of the Claims

This appeal is from a final rejection dated June 2, 2004 and concerns rejected independent claims 1 and 4 and rejected dependent claim 2. Claim 3 stands allowable. This appeal will stand on claim 1. Claims 2 and 4 will either stand or fall with claim 1.

(4) Status of Amendments

No amendment was filed in response to the final rejection.

(5) Summary of Invention

The present invention relates to the formation of glass bottles in an I.S. machine. A glass parison is formed from a gob of molten glass in a blank mold and is then transferred into a blow mold. A parison is a solid rod of glass having the bottle finish formed at one end with a long hole extending into the parison through the finish. A blow head 18 (Fig. 1), which has a blow tube 36/Fig.2, is displaced from a remote position to a position where it rests on top the blow mold 12/Fig.2 (which locates the blow tube in its correct location) and the blow head is then connected to a pressurized air supply 26/Fig.2 to blow the parison into the shape of the blow mold (the shape of the bottle being formed). This pressure almost immediately blows the parison into a bottle. Pressure continues to be applied and air flow into and from the mold continues through a controlled exhaust in the blow head.

Before blow molds can be opened and the bottle removed and displaced to the next location in the process, the surface of the bottle must be cooled or chilled sufficiently so that the chilled bottle will be rigid for such displacement. Heat is transferred from the outer surface of the bottle via contact with the molds and the rate of cooling can be increased by cooling the molds. The internal surface of the formed bottle is cooled by the air flowing from the blow head into the mold and out from the blow head exhaust 42/Fig.2. When the bottle is ready for transfer, the blow head (and blow tube) retract to a remote position, the molds open and a takeout 140/Fig.13 is lowered to grip the bottles and transfer them to a deadplate 240/Fig.16.

Applicant has provided numerous references and the Examiner cites Foster, Hayes, Ueda, Lowe and Mongan which relate to this technology - all, except Foster show straight down injection of cooling air. Foster, like the references cited by applicants, show a variety of nozzles intended to create a swirling of the air flow, from a fixed blow tube, to enhance cooling.

Applicant has found that maximum cooling will take place if the bottom of the blow tube has

"an air deflector (114/Fig.8) having an annular, concave surface (16/Fig.8) terminating at the top with a vertically extending post for deflecting air traveling axially down the blow tube uniformly radially outwardly" and

if the blow tube is displaced

"from the up position down to the down position and then back up to the up position at least one time during the time the parison is blown and cooled".

(6) Issues

The sole issue is whether the examiner's rejection of claim 1 as obvious over Rodriquez-Wong in view of Virog, is in error.

(7) Grouping of the Claims

Only claim 1 is in issue in this appeal. Claim 1 is representative of claim 4 and claim 4 will stand or fall with claim 1.

(8) Argument

Rodriquez-Wong discloses a traditional blow head that has a blow tube which is open at the bottom. The blow head is first lowered into position with the blow tube fully lowered:

"...The blow nozzle, 30 and the blowing head 50, (position B) move downwards. The blowing nozzle, 30, is introduced by the neck of the article E, for blowing or final shaping of the stated article E, while the blowing head, 50, makes contact with the upper part of mold M, to form a pressure chamber during the final blowing of the article."

This is how a blow head works. A closed chamber is defined with the blow tube down, pressure is turned on.

In Rodriquez-Wong, when this process is completed (with the blow tube still at the bottom, "the blowing head has an upward movement . . . while the nozzle 30 keeps supplying air to the recently formed bottle". Rodriquez-Wong is pointing out that unlike conventional blow heads, this combined takeout/blowhead does not turn the air off when the blowhead is to be retracted. Following blow head retraction, the molds are opened, and while the grippers of a takeout are closed below the finish of the formed bottle, the tube is retracted to its up position:

"the blow mold . . . opens and the tongs . . . close around the neck of the container . . . while the nozzle . . . carries out an upward movement disengaging itself from the neck of the container."

While Rodriquez-Wong does not say when air is turned off, such final blow air is conventionally turned off before the blow tube is elevated, remaining off until the blow head again is located on top of the blow molds.

Rodriquez-Wong accordingly discloses a conventional blowhead-blowtube wherein the blow tube has a single operable position - the down position. It does not oscillate during the time when the parison is blown and cooled.

The examiner also cites Virog which is a plastic injection machine. Yes, the word used is parison and yes the parison is blown, but how Virog operates and why it would be relevant to a man skilled in the I.S. machine art is not appreciated by applicant. First Virog extrudes the plastic parison which is open at the bottom. It is not in the molds yet. It is simply hanging. Virog states that "In order to help maintain the shape of the parison, air is often blown outwardly against the upper edge of the parison. This air infringes against the parison near the mandrel and then moves downwardly and out at the lower edge of the parison." At this point air flow is simply for helping to maintain the existing shape of the hanging, formed, open at the bottom, parison. At

some subsequent time the Virog molds are closed, closing the bottom of the parison, and air under pressure is admitted through the same head to form a plastic bottle within the molds.

In Virog there is no discussion of cooling, either of the hanging parison, which is not yet within the molds or of the plastic bottle formed within the closed molds.

CLAIM 1 IS PATENTABLE

Claim 1 defines a blow head structure for blowing a parison into a bottle and cooling the bottle. To this end the claim defines:

"an air deflector having an annular, concave surface terminating at the top with a vertically extending post for deflecting air traveling axially down the blow tube uniformly radially outwardly" so that an annular ring of cooling air will be directed to the hot inner surface of the blown bottle. The blow tube in Rodriquez-Wong is simply open at the bottom.

Claim 1 also requires that the blow tube which has an up position and a down position, be displaced

"from the up position down to the down position and then back up to the up position at least one time during the time the parison is blown and cooled".

Rodriquez-Wong has a blow tube that is at the down position when blowing begins and at the same position when it ends (assuming that final blow air is turned off when it is conventionally turned off). The blow tube does not oscillate during the time when the parison is blown and the formed bottle is cooled.

What teaching in Virog is pertinent to the subject invention? Virog's air flow is for shaping a hanging extruded parison for a plastic bottle. In Virog air flow is not radially outwardly - it just goes down the wall of the parison. The air flow in the subject invention is for cooling a blown parison in an I.S. machine. Virog intends the cooling air from the upper nozzle to flow downwardly along the parison. In the present

application, the intended air flow is "radially outwardly". Air flow in the parison is upwardly to the open top since the bottom of a blown glass parison is closed. Virog does not disclose an annular concave surface. As far as applicant can determine, most of the inlet is filled with a central rod to which an annular thread is located for whatever purpose.

Virog clearly, does not teach anything applicable to the invention claimed herein. Clearly, the claimed subject matter is patentable.

Accordingly, the examiner's rejection of claim 1 should be presently reversed.

Respectfully submitted,

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APPENDIX

CLAIMS:

1. A blow head mechanism for blowing a parison in a blow mold of a blow station of an I.S. machine and cooling the blown parison so that a bottle will be formed which can be removed from the blow station comprising

a blow head assembly,

support means for supporting said blow head assembly,

first displacement means for displacing said support means to displace said blow head assembly between a remote up position and an advanced down position,

said blow head assembly including a blow tube selectively displaceable between an up position and a down position,

second displacement means for displacing said blow tube from the up position down to the down position and then back up to the up position at least one time during the time the parison is blown and cooled,

said blow tube being open at the bottom,

an air deflector having an annular, concave surface terminating at the top with a vertically extending post for deflecting air travelling axially down the blow tube uniformly radially outwardly and

a supporting frame for supporting said air deflector proximate the open bottom of said blow tube.

2. A blow head mechanism for blowing a parison in a blow mold of a blow station of an I.S. machine and cooling the blown parison so that a bottle will be formed which can be removed from the blow station according to claim 1, wherein said supporting frame supports said vertically extending post coaxial with the axis of the blow tube.

3. A blow head mechanism for blowing a parison in a blow mold of a blow station of an I.S. machine and cooling the blown parison so that a bottle will be formed which can be removed from the blow station according to claim 2, wherein the open bottom of said blow tube has an annular recess and said supporting frame includes an annular flange to be press fit into the annular recess and a plurality of struts connecting the top of the vertically extending post to said annular flange.

4. A blow head mechanism for cooling a formed bottle comprising

a blow head assembly,

support means for supporting said blow head assembly,

first displacement means for displacing said support means to displace said blow head assembly between a remote up position and an advanced down position,

said blow head assembly including a blow tube selectively displaceable between an up position and a down position,

second displacement means for displacing said blow tube from the up position down to the down position and then back up to the up position at least one time during the time the bottle is cooled,

said cooling tube being open at the bottom,

an air deflector having an annular, concave surface terminating at the top with a vertically extending post for deflecting air travelling axially down the blow tube uniformly radially outwardly and

a supporting frame for supporting said air deflector proximate the open bottom of said blow tube.